5.5 NOISE

The purpose of this section is to analyze project-related noise source impacts on-site and to surrounding land uses. This section evaluates short-term construction related impacts, as well as future buildout conditions. Mitigation measures are also recommended to avoid or lessen potential noise impacts. Information in this section was obtained from the City of Carlsbad *General Plan* and the City of Carlsbad *Municipal Code*. For the purposes of mobile source noise modeling and contour distribution, traffic data contained in the Traffic Impact Analysis was utilized; refer also to Section 5.6.

5.5.1 Existing Conditions

5.5.1.1 Noise Scales and Definitions

Human response to sound is highly individualized. Annoyance is the most common issue regarding community noise. The percentage of people claiming to be annoyed by noise will generally increase with the environmental sound level. However, many factors will also influence people's response to noise. The factors can include the character of the noise, the variability of the sound level, the presence of tones or impulses, and the time of day of the occurrence. Additionally, non-acoustical factors, such as the person's opinion of the noise source, the ability to adapt to the noise, the attitude towards the source and those associated with it, and the predictability of the noise, will all influence people's response. As such, response to noise varies widely from one person to another and with any particular noise, individual responses will range from "not annoyed" to "highly annoyed."

Sound is described in terms of the loudness (amplitude) of the sound and frequency (pitch) of the sound. The standard unit of measurement of the loudness of sound is the decibel (dB).

Many methods have been developed for evaluating community noise to account for, among other things:

- The variation of noise levels over time;
- The influence of periodic individual loud events; and,
- The community response to changes in the community noise environment.

Since the human ear is not equally sensitive to sound at all frequencies, a special frequency-dependent rating scale has been devised to relate noise to human sensitivity. The A-weighted decibel scale (dBA) performs this compensation by discriminating against frequencies in a manner approximating the sensitivity of the human ear; refer to Table 5.5-1.

Community noise levels can be described in terms of the community noise equivalent level (CNEL). The CNEL is the average A-weighted sound level during a 24-hour day. It is obtained by adding five dBA to sound levels in the evening hours (7 P.M. to 10 P.M.) and by adding 10 dBA to sound levels during the nighttime (10 P.M. to 7 A.M.). The 5- and 10-dBA penalties are applied to take into account for increased noise sensitivity during evening and nighttime hours.

Decibels are based on the logarithmic scale. The logarithmic scale compresses the wide range in sound pressure levels to a more usable range of numbers in a manner similar to the Richter

scale used to measure earthquakes. In terms of human response to noise, a sound 10 dBA higher than another is judged to be twice as loud, and 20 dBA higher four times as loud, and so forth. Everyday sounds normally range from 30 dBA (very quiet) to 100 dBA (very loud). Examples of various single-event sound levels in different environments are illustrated on Figure 5.5-1.

5.5.1.2 Sensitive Receptors

Human response to noise varies widely depending on the type of noise, time of day and sensitivity of the receptor. The effects of noise on humans can range from temporary or permanent hearing loss to mild stress and annoyance due to such things as speech interference and sleep deprivation. Prolonged stress, regardless of the cause, is known to contribute to a variety of health disorders. Noise, or the lack of it, is a factor in the aesthetic perception of some settings, particularly those with religious or cultural significance. Certain land uses are particularly sensitive to noise, including schools, hospitals, rest homes, long-term medical and mental care facilities, and parks and recreation areas. Residential areas are also considered noise sensitive, especially during the nighttime hours.

The Ponto Area is surrounded primarily by residential uses to the north and east of the site. To the south of the site is the Batiquitos Lagoon and to the west is the South Carlsbad State Beach. The nearest hospital to the project site is the Kaiser Permanente Medical Center, which is located approximately less than half a mile north of the Ponto Area. There are no additional sensitive receptors within the immediate area of the proposed project.

5.5.1.3 Ambient Noise Measurements

In order to quantify existing ambient noise levels in the project area, RBF Consulting conducted noise measurements on July 5, 2006; refer to Table 5.5-2. The noise measurement sites were representative of typical existing noise exposure within and immediately adjacent to the project site; refer to Figure 5.5-2. Fifteen-minute measurements were taken at each site, between 8:15 A.M. and 10:45 A.M. Meteorological conditions were typical, with light wind speeds (0 to 5 miles per hour), low humidity and clear skies.

Noise monitoring equipment used for the ambient noise survey consisted of a Larson Davis Laboratories Model LDL 820 sound level analyzer equipped with a Larson Davis Random Incidence Model 2561 microphone. The instrumentation was calibrated prior to use with a Larson Davis Model CAL250 acoustical calibrator to ensure the accuracy of the measurements, and complies with applicable requirements of the American National Standards Institute (ANSI) for Type I (precision) sound level meters. The results of the field measurements are indicated in Appendix D of Appendix F of this EIR. Existing measured noise levels range from approximately 48.3 dBA to 59.8 dBA.

Mobile Sources

Vehicular Noise

In order to assess the potential for mobile source noise impacts, it is necessary to determine the noise currently generated by vehicles traveling through the project area. The existing roadway noise levels in the vicinity of the project site were projected. Noise models were run using the Federal Highway Administration's Highway Noise Prediction Model (FHWA RD-77-108) together with several roadway and site parameters. These parameters determine

the projected impact of vehicular traffic noise and include the roadway cross-section (e.g., number of lanes), roadway width, average daily traffic (ADT), vehicle travel speed, percentages of auto and truck traffic, roadway grade, angle-of-view and site conditions ("hard" or "soft"). The model does not account for ambient noise levels (i.e., noise from adjacent land uses) or topographical differences between the roadway and adjacent land uses. Noise projections are based on modeled vehicular traffic as derived from the project Traffic Impact Study.

A 25 to 50 mile per hour (mph) average vehicle speed was assumed for existing conditions based on empirical observations and posted maximum speeds along the adjacent roadways. ADT estimates were obtained from the project Traffic Impact Study; refer to Appendix G of the EIR. Existing modeled traffic noise levels can be found in Table 5.5-3. As shown in Table 5.5-3, noise within the area from mobile noise ranges from 57.0 dBA to 73.5 dBA.

Airport Noise

The nearest airport located to the proposed project is the McClellan-Palomar Airport, which is located approximately 2.5 miles northeast of the site. According to City's *Noise Guidelines Manual*, the Ponto Area is located outside of the airport's 60 dBA CNEL; refer to Table 5.5-1. Therefore, the site would not be significantly impacted by airport operations.

Railroad Noise

The Ponto Area is bordered to the east by the San Diego Northern Railroad, which runs parallel to the coastline. Currently, AMTRAK operates several daily passenger trains between San Diego and Los Angeles. Additionally, a number of freight trains pass through Carlsbad daily, some after 5:00 P.M. It has been anticipated within the City's General Plan, up to 20 commuter trains may travel through the City at high speeds on a daily basis. Some trains may also pass during evening and nighttime hours.

Stationary Noise Sources

The Ponto Area is largely vacant, with the exception of the residential/commercial uses in the northern portion of the Ponto Area. Surrounding uses generally include residential, recreational, and parking uses. The primary sources of stationary noise in the project vicinity are generally urban-related activities (i.e., mechanical equipment, parking areas, conversations and recreational areas). The noise associated with these sources may represent a single event noise occurrence, short-term or long-term/continuous noise.

5.5.1.4 Regulatory Setting

It is difficult to specify noise levels that are generally acceptable to everyone; what is annoying to one person may be unnoticed by another. Standards may be based on documented complaints in response to documented noise levels, or based on studies of the ability of people to sleep, talk or work under various noise conditions. All such studies, however, recognize that individual responses vary considerably. Standards usually address the needs of most of the general population.

This section summarizes the laws, ordinances, regulations and standards that are applicable to the project. Regulatory requirements related to environmental noise are typically promulgated at the local level. However, Federal and state agencies provide standards and guidelines to the local jurisdictions.

State of California Guidelines

California Environmental Quality Act

CEQA was enacted in 1970 and requires that all known environmental effects of a project be analyzed, including environmental noise impacts. Under CEQA, a project has a potentially significant impact if the project exposes people to noise levels in excess of standards established in the local general plan or noise ordinance. Additionally, under CEQA, a project has a potentially significant impact if the project creates a substantial increase in the ambient noise levels in the project vicinity above levels existing without the project. If a project has a potentially significant impact, mitigation measures must be considered. If mitigation measures to reduce the impact to less than significant levels are not feasible due to economic, social, environmental, legal or other conditions, the most feasible mitigation measures must be considered.

California Government Code

California Government Code Section 65302 (f) mandates that the legislative body of each county and city adopt a noise element as part of their comprehensive general plan. The local noise element must recognize the land use compatibility guidelines established by the State Department of Health Services, as shown in Table 5.5-4.

The guidelines rank noise land use compatibility in terms of "normally acceptable," "conditionally acceptable," "normally unacceptable," and "clearly unacceptable" noise levels for various land use types. Single-family homes are "normally acceptable" in exterior noise environments up to 60 dBA CNEL and "conditionally acceptable" up to 70 dBA CNEL. Multiple-family residential uses are "normally acceptable" up to 65 dBA CNEL and "conditionally acceptable" up to 70 dBA CNEL. Schools, libraries and churches are "normally acceptable" up to 70 dBA CNEL, as are office buildings and business, commercial and professional uses.

City of Carlsbad

General Plan

The City of Carlsbad has established noise guidelines in the Noise Element of the City's *General Plan* (City of Carlsbad 1995). These limits are applicable to transportation noise sources. The noise guidelines identify compatible exterior noise levels for various land use types. Residential land uses are considered normally acceptable up to 60 dBA CNEL. Commercial land uses are considered normally acceptable up to 65 dBA CNEL and conditionally acceptable up to 75 dBA CNEL. General industrial and utility uses are considered normally acceptable up to 70 dBA CNEL and conditionally acceptable up to 80 dBA CNEL.

The following goals and objectives were taken from the City of Carlsbad *General Plan* Noise Element:

Land Use

A. Goal

A.1 A City where land uses are not significantly impacted by noise.

A.2 A City with industrial and commercial land uses which do no produce significantly adverse noise impacts.

A.3 A City which controls mobile sources of noise to help assure that mobile noise sources do not substantially contribute to the noise environment.

B. Objectives

B.1 To achieve noise compatibility between industrial/commercial and surrounding land uses and achieve an acceptable noise environment in industrial/commercial areas.

B.2 To achieve noise impact compatibility between land uses through the land use planning/development review process.

B.3 To actively control mobile noise violations.

Circulation

A. Goal

To provide a roadway system that does not subject surrounding land uses to significantly adverse noise levels.

B. Objectives

To design and manage all roadways to maintain acceptable noise levels.

Airport

A. Goal

A City that achieves long-term compatibility between the airport and surrounding land use.

B. Objectives

B.1 To minimize noise impacts on City residents, the City has planned for non-residential land uses within the 65 dBA CNEL Noise Contour of McClellan-Palomar Airport.

Rail

A. Goal

Noise from railroad travel through Carlsbad is not disruptive to adjacent land uses and activities.

B. Objectives

To develop, maintain and manage a mitigation program for railroad noise.

Municipal Code

The City of Carlsbad Municipal Code, Section 8.48.010 (Limitation of Hours for Construction) regulates construction noise by limiting the hours of operation. Construction activities are allowed on Monday through Friday between the hours of 7:00 A.M. to sunset and on Saturdays from 8:00 A.M. to sunset, excluding Sundays and legal holidays. The City

does not have quantitative noise level limits (i.e., limits based on sound levels) for general nuisance noise, such as that associated with stationary equipment located on private property.

Noise Guidelines Manual

The City of Carlsbad also provides a *Noise Guidelines Manual* (dated September 1995), that establishes the noise standards and criteria for analyzing noise impacts within the City. The *Noise Guidelines Manual* includes policies from the *General Plan* that focuses on land use and noise compatibility policies of Carlsbad. The proposed project has been analyzed per the guidance and methodologies provided within the *Noise Guidelines Manual*.

5.5.2 Thresholds for Determining Significance

Appendix G of the CEQA Guidelines contains analysis guidelines related to the assessment of noise impacts. These guidelines have been utilized as thresholds of significance for this analysis. As stated in Appendix G, a project would create a significant environmental impact if it would:

- Expose persons to, or generate, noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- Expose persons to or generate excessive ground borne vibration or ground borne noise levels;
- Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;
- Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project;
- For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, expose people residing or working in the project area to excessive noise levels; or,
- For a project within the vicinity of a private airstrip, expose people residing or working in the project area to excessive noise levels.

5.5.2.1 Carlsbad Noise Criteria

According the City of *Carlsbad Noise Guidelines Manual*, the following criteria is used by the City of Carlsbad to determine if projects would cause significant impacts:

- Increase existing noise levels, by more than 3 dBA CNEL;
- Expose people to noise levels above 85 dBA, which are considered hazardous;
- Establish residential uses in areas within or 500 feet beyond the 60 dBA CNEL noise contour line of the Noise Contour Maps approved as part of the General Plan; and,
- Create a noise/land-use conflict pursuant to Figure IV-2 Land Use Compatibility for Community Noise Environments; refer to Table 5.5-4.

5.5.3 Environmental Impacts

5.5.3.1 Short-Term (Construction) Impacts

As properties within the Ponto Area are all privately owned, development of the area will take place incrementally as individual property owners choose to undertake development or redevelopment activities. Therefore, a scheduled construction-phasing plan has not been established for the project.

Construction activities generally have a short and temporary duration, lasting from a few days to a period of several months. Ground-borne noise and other types of construction-related noise impacts would typically occur during the initial site preparation, which can create the highest levels of noise; but is also generally the shortest of all construction phases. High ground-borne noise levels and other miscellaneous noise levels can be created by the operation of heavy-duty trucks, backhoes, bulldozers, excavators, front-end loaders, compactors, scrapers, and other heavy-duty construction equipment.

Table 5.5-5 indicates the anticipated equipment noise levels during construction on individual ownerships within the Ponto Area. In order to estimate the "worst case" construction noise levels, the combined construction equipment noise levels have been calculated for the grading/excavation phases; refer to Table 5.5-6. Operating cycles for these types of construction equipment may involve one or two minutes of full power operation followed by three to four minutes at lower power settings. Other primary sources of acoustical disturbance would be random incidents, which would last less than one minute (such as dropping large pieces of equipment or the hydraulic movement of machinery lifts).

Impact N-1 The nearest existing noise-sensitive (residential) uses are located approximately 100 feet north of the Ponto Area. According to Table 5.5-6, noise levels could reach approximately 88 dBA at 100 feet from construction equipment. Therefore, proposed construction activities could potentially exceed 85 dBA, which would be considered significant per the Carlsbad Significance Criteria; refer to Section 5.5.2.1. To reduce potential impacts from construction noise, Mitigation Measure N-1 would be implemented, which includes such measures as engine muffling, placement of construction equipment, and strategic stockpiling and staging of construction vehicles.

Impact N-2 Future construction within the Ponto Area could also result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above existing levels if construction were to occur outside of hours established by the City for such activities. To reduce such impacts from construction noise, Mitigation Measure N-2 would be implemented, which would require project compliance with the City's Municipal Code, which limits construction activities to Monday through Friday between the hours of 7:00 A.M. to sunset and on Saturdays from 8:00 A.M. to sunset, excluding Sundays and legal holidays.

5.5.3.2 Long-term (Mobile) Impacts

Future development within the Ponto Area would result in additional traffic on adjacent roadways, thereby increasing vehicular noise in the vicinity of existing and proposed land uses. Six scenarios were modeled based on the Traffic Impact Analysis: Existing With and Without Project, Year 2010 With and Without Project (see Section 7.0 for additional

discussion), and Year 2030 With and Without Project. As previously discussed, an increase of three dBA or greater in noise levels occurring from project-related activities would be significant based upon the City of Carlsbad *Noise Guidelines Manual*. The noise level (dBA at 100 feet from centerline) depicts what would typically be heard 100 feet perpendicular to the roadway centerline.

Existing Conditions

As indicated in Table 5.5-7, under the "Existing" scenario, noise levels at a distance of 100 feet from centerline of roadways in the surrounding area (and considered in the noise analysis) range from approximately 56.3 dBA to 73.7 dBA. The highest noise levels under "Existing" conditions would occur along Palomar Airport Road between El Camino Real and El Fuerte. Similar to the "Existing" scenario, under the "Existing With Project" scenario noise levels at a distance of 100 feet from the centerline would range from approximately 56.5 dBA to 73.8 dBA. The highest noise levels under future with project conditions would occur along Palomar Airport Road between El Fuerte Road and Melrose Road.

Table 5.5-7 also compares the "Existing" scenario to the "Existing With Project" scenario. With development of the Ponto Area, noise levels along Poinsettia Lane between Carlsbad Boulevard and Avenida Encinas would increase by a maximum of 2.4 dBA. Based on the City of Carlsbad Noise Guidelines, an increase of 3.0 dBA would be considered significant. Therefore, noise levels under the Existing With Project scenario would be less than significant.

Year 2010 Conditions

Table 5.5-8 provides the anticipated noise levels for the With and Without Project scenarios in Year 2010, which is discussed herein to provide a comparison with Year 2030 conditions (see below). According to Table 5.5-8, under the "2010 Without Project" scenario, noise levels at a distance of 100 feet from centerline of roadways in the surrounding area (and considered in the noise analysis) would range from approximately 59.2 dBA to 74.7 dBA. Similar to "Existing Conditions," the highest noise levels would occur along Palomar Airport Road between El Camino Real and El Fuerte Road. Table 5.5-8 also illustrates that with development of the Ponto Area, noise levels would increase by a maximum of 10 dBA along Poinsettia Lane between Carlsbad Boulevard and Avenida Encinas. As with the "Existing Conditions" scenarios, impacts associated with this increase would be less than significant. Based on the City of Carlsbad *Noise Guidelines Manual*, an increase of less than 3.0 dBA would be considered less than significant. Therefore, noise levels resulting from the proposed project during Year 2010 conditions would be less than significant.

Year 2030 Conditions

As shown in Table 5.5-9, under the "2030 Without Project" scenario, noise levels at a distance of 100 feet from centerline of roadways in the surrounding area (and considered in the noise analysis) would range from approximately 59.6 dBA to 75.0 dBA. The highest noise levels would occur along Palomar Airport Road, between El Camino Real to El Fuerte and from El Fuerte to Melrose.

Year 2030 traffic volumes were developed using the San Diego Association of Governments (SANDAG) travel demand model. Thus, to develop a "Year 2030 No Project" condition, the Ponto Vision Plan trips were subtracted from the "Year 2030 With Project" condition. This

leads to an inherent difference in the calculation of projected traffic volumes between the Year 2030 and Year 2010 scenarios (see Section 7.0 for additional discussion), as the Year 2010 background volumes did not include the Ponto Vision Plan trips. Thus, by doing a comparison of the traffic volumes in Tables 5.5-8 and 5.5-9, traffic volumes Year 2030 appear less than Year 2010 for many roadway segments.

Under the "2030 With Project" scenario, noise levels at a distance of 100 feet from the centerline of roadways in the surrounding area (and considered in the noise analysis) are forecast to range from approximately 59.6 to 75.1 dBA. In Table 5.5-9, the "2030 With Project" scenario would result in an increase of 3.2 dBA along Poinsettia Lane between Carlsbad Boulevard and Avenida Encinas and Avenida Encinas to Interstate 5 (I-5) freeway, with traffic volumes increasing from 6,278 trips to 13,200 trips for both segments. However, as noted in Table 5.5-8 for Year 2010 conditions, background traffic volumes along these same segments are 40 to 75 percent higher and experience the same increase of 6,822 trips. Yet, under Year 2010 conditions, the noise level increase is 1.1 dBA for Avenida Encinas to the I-5, and 2.2 dBA for Carlsbad Boulevard to Avenida Encinas. A primary reason that the segments increased by 3.2 dBA under Year 2030 conditions is that the acoustical model interpreted the traffic volumes as doubling, which roughly leads to a 3 dBA increase. However, as the model has a margin of error of roughly 0.3 dBA and the higher traffic volumes did not produce a significant impact under Year 2010, impacts are concluded to be less than significant for Year 2030.

On-site Vehicular Noise

Impact N-3 Carlsbad Boulevard borders the Ponto Area to the west while Avenida Encinas bisects the Ponto Area in the southern portion. According to Table 5.5-9, Carlsbad Boulevard would result in noise levels ranging from 69.3 dBA CNEL to 68.9 dBA CNEL in Year 2030. Avenida Encinas would result in noise levels ranging from 59.6 dBA CNEL to 63.2 dBA CNEL. According to the Vision Plan, proposed land uses bordering Carlsbad Boulevard would include commercial land uses such as retail and restaurants, live/work areas, townhomes, and hotels. Along Avenida Encinas, residential homes, retail, and hotel have been proposed. As indicated in the *Noise Guidelines Manual,* 60 dBA CNEL is the exterior noise level and 45 dBA CNEL is the interior noise level to which residential uses must be mitigated. Therefore, noise impacts from vehicular noise may be potentially significant and mitigation would be required. Noise attenuation such as sound walls and upgraded insulation standards for residential units may be necessary to provide shielding of sensitive receptors from vehicular activity. As stated in Mitigation Measure N-3, prior to the future development of residential units along Carlsbad Boulevard and Avenida Encinas, an acoustical noise analysis shall be required to ensure that exterior and interior noise levels are met.

Railroad Operations

As previously discussed above, the SDNR borders the Ponto Area to the east. The railroad is used by freight trains and AMTRAK, which operates several daily passenger trains between San Diego and Los Angeles. The surrounding land uses (existing and future) adjacent to the railroad would consist of mixed-use retail, live/work areas, residential neighborhoods, and hotels.

Table 5.5-11 divides the Ponto Area into areas A through I and provides the proposed land uses within each area. According to the Vision Plan, Areas A, C, D, and E would be located

adjacent to the SDNR; refer to Tabl 5.5-11. Railroad noise levels were calculated using the U.S. Department of Housing and Urban Development Noise Assessment guidelines. Modeling was conducted for freight trains and high-speed trains to determine the noise levels resulting from the types of trains currently utilizing the railroad. Based on the anticipated data from the City's General Plan, 20 trains were modeled. The following assumptions were utilized in the analysis of rail operations:

- 20 Trains (15 during the daytime hours, 5 during nighttime hours);
- 50 miles per hour;
- 74-foot long power car; and,
- 63-foot long freight car.

Table 5.5-10 illustrates the noise levels that would potentially be experienced within the Ponto Area. Based on the noise modeling performed, the maximum noise level that would be experienced at the project site at 100 feet from the centerline of the tracks is 60 dBA CNEL. In order to calibrate the model, the noise measurements listed in Table 5.5-2 were used. Noise Measurement 5 as shown in Figure 5.5-2 was taken approximately 100 feet from the railroad centerline. As shown in Table 5.5-2, the noise level recorded as a train passed by the project site was 59.8 dBA. Therefore, the noise measurements are consistent with the modeled railroad noise. Noise levels at the project site are below the City of Carlsbad noise standards of 60 dBA CNEL, and therefore would not be considered a significant impact to the proposed residential unit within Plan Area D; refer to Table 5.5-11. No additional mitigation is required.

5.5.3.3 Long-Term (Stationary) Noise Impacts

Land uses intended for the area include residential homes, specialty retail, hotel facilities, retail, and a park. Noise associated with operational activities of mixed use development is typically generated by the following sources:

- Trucks traveling on the site, to and from loading docks;
- Mechanical equipment (air conditioners, trash compactors, emergency generators, etc.);
- Typical parking lot activities (i.e., parking lot traffic and car door slamming); and,
- Landscape maintenance.

Mechanical Equipment

Mechanical equipment, such as generators, pool pumps, trash compactors, heating, ventilation and air conditioning (HVAC) units would be included as part of the proposed project. Mechanical equipment would typically be utilized in commercial areas and hotels. However the greatest mechanical noise is anticipated to be generated at the proposed hotels, as they typically require large HVAC units.

Noise generated from mechanical equipment could significantly impact residential uses and other sensitive receptors within the project vicinity by exceeding the City's 60 dBA CNEL exterior noise standard for residential units. Noise levels from mechanical equipment would

be minimized with implementation of mitigation requiring the orientation of equipment away from any sensitive receptors, proper selection of equipment, and installation of equipment with proper acoustical shielding. Once development plans are finalized, each individual project would be required to perform further acoustical analysis to ensure City standards are met.

Loading Docks & Slowly Moving Trucks (Deliveries)

Typically, a medium 2-axle truck used to make deliveries can generate a maximum noise level of 75 dBA at a distance of 50 feet. These are levels generated by a truck operated by an experienced "reasonable" driver with typically applied accelerations. Higher noise levels may be generated by the excessive application of power. Lower levels may be achieved, but would not be considered representative of a nominal truck operation. Future uses within the Ponto Area are not anticipated to require a significant amount of truck deliveries.

The balance of deliveries for the entire commercial center would consist of vendor deliveries in vans and would be somewhat infrequent and irregular as the retail center is not a "daily needs" type center. The noise associated with one large truck delivery and smaller cargo vans would not result in a significant amount of truck trips to increase noise within the Ponto Area. Additionally, most deliveries would occur during daytime hours. Therefore, this issue is considered less than significant.

Noise sources at loading docks may include maneuvering and idling trucks, truck refrigeration units, fork lifts, banging and clanging of equipment (i.e., hand carts and roll-up doors), noise from public announcement (P.A.) systems, and voices of truck drivers and employees. The maximum noise level associated with loading docks is typically 73 dBA at 75 feet. The Ponto Vision Plan proposes commercial uses, as described above, that may contain loading docks. Noise generated by loading docks could exceed the City's 60 dBA CNEL noise standard for residential and/or other sensitive noise receptors. However, since future development land uses are not anticipated to require significant truck deliveries, impacts are anticipated to be less than significant.

Parking Areas

Traffic associated with parking lots is typically not of sufficient volume to exceed community noise standards, which are based on a time-averaged scale such as the CNEL scale. However, the instantaneous maximum sound levels generated by a car door slamming, engine starting up and car pass-bys may be an annoyance to adjacent noise-sensitive receptors. Typical noise levels generated by parking areas are an estimated 70 dBA at 50 feet from the source during peak events (this is an "instantaneous" or peak noise level). Parking lot noise would also be partially masked by background noise from adjacent roads and typical community noise sources. Conversations in parking areas may also be an annoyance to adjacent sensitive receptors. Sound levels of speech typically range from 33 dBA at 48 feet for normal speech to 50 dBA at 50 feet for very loud speech. As noise generated within parking areas would be single-event and therefore temporary, impacts are considered to be less than significant.

Overall Stationary Noise

Impact N-4 Residential neighborhoods are considered sensitive receptors, and noise attenuation would be necessary to ensure that the City's 60 dBA exterior and 40 dBA interior

noise standards are met. As previously mentioned, noise attenuation such as sound walls and upgraded insulation standards for residential units may be necessary to provide shielding from noise generated by future hotel, retail or restaurant uses generating stationary noise. Possible mitigation measures to attenuate noise at sensitive receptors would include sound barriers or parapets around HVAC units, development of delivery schedules occurring only during daylight hours, or the establishment of truck routes to avoid truck travel through residential neighborhoods. However, it would be necessary for a qualified acoustical consultant to prepare a focused acoustical report, prior to approval of site plans for any future residential uses within Ponto Area. Therefore, impacts resulting from overall stationary noise would be considered potentially significant and mitigation would be required.

5.5.4 Mitigation Measures

5.5.4.1 Short-Term (Construction) Impacts

N-1 For all projects within 1,000 feet of residential neighborhoods, prior to Grading Permit issuance, future developments shall demonstrate to the City of Carlsbad that the project complies with the following:

- All construction equipment, fixed or mobile, shall be equipped with properly operating and maintained mufflers;
- Construction noise reduction methods such as shutting off idling equipment, installing temporary acoustic barriers around stationary construction noise sources, maximizing the distance between construction equipment staging areas and occupied residential areas, and use of electric air compressors and similar power tools, rather than diesel equipment, shall be used where feasible;
- During construction, stationary construction equipment shall be placed such that emitted noise is directed away from sensitive noise receivers;
- During construction, stockpiling and vehicle staging areas shall be located as far as practical from noise sensitive receptors;
- Operate earthmoving equipment on the construction site, as far away from vibration sensitive sites as possible; and,
- Construction hours, allowable workdays, and the phone number of the job superintendent shall be clearly posted at all construction entrances to allow for surrounding owners and residents to contact the job superintendent. If the job superintendent receives a complaint, appropriate corrective actions shall be implemented and a report of the corrective action taken to the reporting party.

N-2 As provided within the City of Carlsbad *Municipal Code,* Section 8.48.010, construction activities shall occur Monday through Friday between the hours of 7:00 A.M. to sunset and on Saturdays from 8:00 A.M. to sunset, excluding Sundays and legal holidays.

5.5.4.2 Long-Term (Mobile) Impacts

N-3 Prior to Final Development Plan approval for future developments within the Ponto Area, subsequent noise studies shall be prepared to the satisfaction of the City of

Carlsbad, which demonstrate that mobile noise sources would not exceed maximum interior noise level criteria established for residential uses in the City General Plan and that maximum exterior noise levels have been mitigated to the maximum extent feasible. The acoustical reports shall also be prepared pursuant to the City of Carlsbad *Noise Guidelines Manual.* The analysis shall verify that residences are adequately shielded and/or located at an adequate distance from mobile noise sources in order to comply with the City's noise standards. Individual developments shall, to the extent feasible, implement site-planning techniques such as:

- Increasing the distance between the noise source and the receiver;
- Using non-noise sensitive structures such as garages to shield noise-sensitive areas;
- Orienting buildings to shield outdoor spaces from a noise source;
- Orienting non-noise generating uses toward existing adjacent residential uses;
- Designating a commercial truck route along Avenida Encinas to minimize potential truck noise along interior roadways by routing such vehicles away from more noise-sensitive uses within the Ponto Area.
- Individual developments shall incorporate architectural design strategies, which reduce the exposure of noise-sensitive spaces to stationary noise sources (i.e., placing bedrooms or balconies on the side of the house facing away from noise sources). These design strategies shall be implemented based on recommendations of acoustical analysis for individual developments as required by the City to comply with City noise standards;
- Individual developments shall incorporate noise barriers, walls, or other sound attenuation techniques, based on recommendations of acoustical analysis for individual developments as required by the City to comply with City noise standards; and,
- Elements of building construction (i.e., walls, roof, ceiling, windows, and other penetrations) shall be modified as necessary to provide sound attenuation. This may include sealing windows, installing thicker or double-glazed windows, locating doors on the opposite side of a building from the noise source, or installing solid-core doors equipped with appropriate acoustical gaskets.

5.5.4.3 Long-Term (Stationary) Impacts

N-4 Electrical and mechanical equipment (i.e., ventilation and air conditioning units) shall be located away from sensitive receptor areas. Additionally, the following considerations should be given prior to installation: proper selection and sizing of equipment, installation of equipment with proper acoustical shielding, and incorporation of the use of parapets into building design. Prior to Final Development Plan approval for future developments within the Ponto Area, subsequent noise studies shall be prepared to the satisfaction of the City of Carlsbad, which demonstrate that noise from electrical and mechanical equipment would not exceed maximum interior noise level criteria established for residential uses in the City

General Plan and that maximum exterior noise levels have been mitigated to the maximum extent feasible.

5.5.5 Impacts After Mitigation

Despite implementation of Mitigation Measures N-1 and N-2, short-term construction activities are anticipated to result in noise levels above 85 dBA. Therefore, per the City's standards, a significant temporary noise impact could potentially occur during future construction activities. Although Mitigation Measures N-1and N-2 are proposed to reduce noise levels resulting from construction activities, mitigation would not reduce such noise impacts to less than significant. Therefore, this impact would be significant and unavoidable.

Mitigation Measure N-3 would reduce long-term (mobile) impacts associated with Impact N-3 to less than significant. This mitigation measure would ensure that noise levels at residential units remain below the 60 dBA CNEL exterior noise level and the 45 dBA CNEL interior noise level criteria. Mitigation Measure N-3 would require that for future development of residential units along Carlsbad Boulevard or Avenida Encinas, an acoustical noise analysis be prepared to ensure that exterior and interior noise level requirements are met. Through compliance with Mitigation Measure N-3, impacts associated with roadway noise would be mitigated to less than significant.

Mitigation Measure N-4 would reduce long-term (stationary) impacts associated with Impact N-4 to less than significant. This mitigation measure would require that design measures be implemented to reduce potential noise impacts from electrical and mechanical equipment (i.e., ventilation and air conditioning units) on sensitive receptor areas. With such measures as consideration for the selection and sizing of equipment or incorporation of the use of parapets into building design, noise impacts resulting from the operation of such equipment would be reduced to less than significant.

If the City of Carlsbad approves the EIR for the Ponto Beachfront Village Vision Plan, the City shall be required to cite their findings in accordance with Section 15091 of CEQA and prepare a Statement of Overriding Considerations in accordance with Section 15093 of CEQA.

Table 5.5-1
Noise Descriptors

Term	Definition
Decibel (dB)	The unit for measuring the volume of sound equal to 10 times the logarithm (base 10) of the ratio of the pressure of a measured sound to a reference pressure (20 micropascals).
A-Weighted Decibel (dBA)	A sound measurement scale that adjusts the pressure of individual frequencies according to human sensitivities. The scale accounts for the fact that the region of highest sensitivity for the human ear is between 2,000 and 4,000 cycles per second (hertz).
Equivalent Sound Level (L_{eq})	The sound level containing the same total energy as a time varying signal over a given time period. The L_{eq} is the value that expresses the time averaged total energy of a fluctuating sound level.
Maximum Sound Level (L_{max})	The highest individual sound level (dBA) occurring over a given time period.
Minimum Sound Level (L_{min})	The lowest individual sound level (dBA) occurring over a given time period.
Community Noise Equivalent Level (CNEL)	A rating of community noise exposure to all sources of sound that differentiates between daytime, evening, and nighttime noise exposure. These adjustments are +5 dBA for the evening, 7:00 P.M. to 10:00 P.M., and +10 dBA for the night, 10:00 P.M. to 7:00 A.M.
Day/Night Average (L_{dn})	The L_{dn} is a measure of the 24-hour average noise level at a given location. It was adopted by the U.S. Environmental Protection Agency (EPA) for developing criteria for the evaluation of community noise exposure. It is based on a measure of the average noise level over a given time period called the L_{eq}. The L_{dn} is calculated by averaging the Leq's for each hour of the day at a given location after penalizing the "sleeping hours" (defined as 10:00 P.M. to 7:00 A.M.), by 10 dBA to account for the increased sensitivity of people to noises that occur at night.
Source: Cyril M. Harris, *Handbook of Noise Control*, 1979.	

Table 5.5-2
Noise Measurements

Site No.	Location	Leq (dBA)	Time
1	Whitewater Drive	54.1	8:15 A.M.
2	South end of Ponto Drive	56.4	9:00 A.M.
3	Dory Lane and Portage Way	49.1	9:20 A.M.
4	San Luis Drive near San Ramon	48.3	10:15 A.M.
5	Near train tracks, southeast portion of Ponto Area	59.8	10:45 A.M.
Source: RBF Consulting, July 5, 2006.			

Table 5.5-3
Existing Noise Levels

Roadway Segment	ADT	DBA CNEL @ 100 Feet from Roadway Centerline	Distance from Roadway Centerline to: (Feet)		
			60 CNEL Noise Contour	65 CNEL Noise Contour	70 CNEL Noise Contour
Carlsbad Boulevard					
Palomar Airport Rd. to Island Way	14,220	66.9	602	190	60
Island Way to Breakwater	18,134	68.0	768	243	77
Breakwater to Poinsettia	18,641	68.1	789	250	79
Poinsettia to Avenida Encinas	18,853	68.2	988	252	80
Avenida Encinas to La Costa	24,061	69.2	1019	322	102
La Costa to Leucadia	15,900	67.7	673	213	67
South of Leucadia	16,000	67.7	678	214	68
Avenida Encinas					
Cannon Road to Palomar Airport Road	7,667	61.4	161	51	16
South of Palomar Airport Road	14,220	64.1	299	95	30
North of Poinsettia	4,748	56.3	49	15	5
South of Poinsettia	14,354	62.6	215	68	22
East of Ponto	3,777	57.0	57	18	6
College Blvd./ Aviara Pkwy.					
North of Palomar Airport Rd.	12,287	66.0	46.3	146	46
Palomar Airport Rd. to Poinsettia	10,524	64.1	300	95	30
Poinsettia to Batiquitos	15,557	64.4	327	104	33
Paseo del Norte					
North of Palomar Airport Rd.	10,558	61.2	159	50	16
Palomar Airport Rd. to Camino de Las Ondas	10,558	62.8	222	70	22
Camino de Las Ondas to Poinsettia Lane	10,558	62.8	222	70	22
Palomar Airport Road					
Carlsbad Blvd. to Avenida Encinas	12,203	63.0	226	72	23
Ave Encinas to Paseo del Norte	48,294	68.8	898	284	90
Paseo del Norte to Armada Dr.	52,208	71.5	1715	542	171
Armada Dr. to Hidden Valley Rd.	46,998	73.2	2519	796	252
Hidden Valley Rd. to College Blvd.	46,052	73.1	2467	780	247
College Blvd. to Camino Vida Roble	37,013	72.1	1982	627	198
Camino Vida Roble to El Camino Real	32,878	71.6	1763	557	176

Table 5.5-3 continued

Roadway Segment	ADT	DBA CNEL @ 100 Feet from Roadway Centerline	Distance from Roadway Centerline to: (Feet)		
			60 CNEL Noise Contour	65 CNEL Noise Contour	70 CNEL Noise Contour
El Camino Real to El Fuerte	50,438	73.5	2705	855	270
El Fuerte to Melrose	53,603	73.7	2872	908	287
El Camino Real					
North of Palomar Airport Rd.	33,148	67.0	615	195	62
Palomar Airport Rd. to Camino Vida Roble	32,148	66.9	597	189	60
Camino Vida Roble to Cassia	30,825	66.7	573	181	57
Cassia to La Costa	46,017	73.1	2467	780	247
La Costa to Leucadia	35,932	72.0	1924	608	192
Poinsettia Lane					
Carlsbad to Avenida Encinas	9,092	60.8	136	43	14
Avenida Encinas to I-5	17,800	63.6	267	84	27
I-5 to Paseo del Norte	20,762	64.3	312	99	31
Paseo del Norte to Batiquitos	29,467	65.7	442	140	44
Batiquitos to Aviara	22,702	67.4	647	205	65
La Costa Avenue					
Carlsbad to Vulcan	11,200	61.8	168	53	17
Vulcan to I-5	14,981	63.1	225	71	22
I-5 to Piraeus	33,921	66.4	509	161	51
Piraeus to El Camino Real	33,330	71.3	1619	512	162
East of El Camino Real	10,015	63.9	286	90	29

ADT = average daily trips; dBA = A-weighted decibels; CNEL = community noise equivalent level

Notes:

1. Traffic data was based upon ADT counts per the Traffic Impact Analysis provided by RBF Consulting, October 2006.

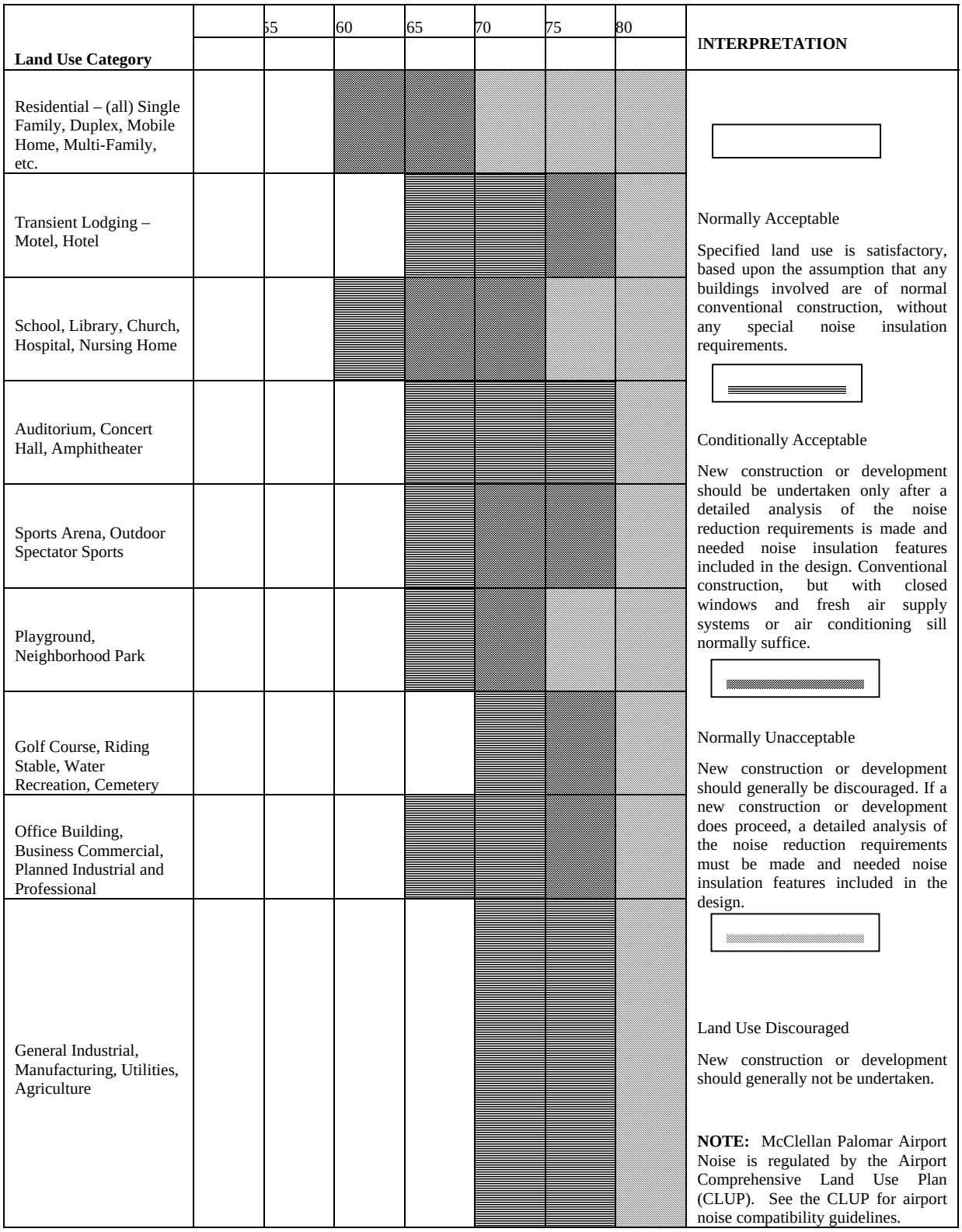
2. Based on the City of Carlsbad *Noise Guidelines Manual*, the following vehicle mix was utilized:

Non Truck Route: 97.89 % Automobiles, 1.83% Medium Trucks, 0.28% Heavy Trucks; and

Designated Truck Route: 95.24 % Automobiles, 3.52% Medium Trucks, 0.83% Heavy Trucks.

Only Carlsbad Boulevard and Palomar Airport Road were modeled as *Designated Truck Routes*. All other roadways were modeled as *Non Truck Routes*.

Table 5.5-4
Land Use Compatibility for Community Noise Environments



Source: City of Carlsbad, *Noise Guidelines Manual,* September 1995.

Table 5.5-5
Typical Construction Equipment Noise Levels

Equipment Type	Typical Average Equipment Noise Level at 100 ft. in dB(A)[1]
Air Compressor	75
Backhoe	75
Concrete Mixer	75
Concrete Pump	75
Crane	75
Dozer	75
Generator	75
Grader	75
Jackhammer	75
Loader	75
Paver	80
Pneumatic Tools	80
Pump	75
Saws	75
Scraper	80
Tractor	75
Trucks	75

Notes:

1. With noise controls applied. Obtainable by selecting quieter procedures or machines and implementing noise control features such as improved mufflers, use of silencers, shields, shrouds, ducts and engine enclosures.

Source: U. S. Environmental Protection Agency, 1971.

Table 5.5-6
Combined Construction Equipment Noise Levels

Construction Phase & Equipment	Avg. Equipment Noise Level @ 100'	Usage Factor[1]	Avg. Equipment Noise Level @ 100' with Usage Factor
Grading and Excavation			
1 Excavator	75 dB(A)	0.08	64 dB(A)
1 Trencher	75 dB(A)	0.4	71 dB(A)
2 Off Highway Trucks	78 dB(A)	0.4	74 dB(A)
1 Tractor/Loader/Backhoe	81 dB(A)	0.4	77 dB(A)
		Combined	*88 dB(A)*

Notes: [1] Percentage of time equipment is operating at noisiest mode in most used phase on site.

Source: U. S. Environmental Protection Agency, 1971.

Table 5.5-7
Existing and Existing Plus Project Noise Levels[1]

Existing						Existing Plus Project					Difference in dBA @ 100 Feet from Roadway
Roadway Segment[2]	ADT	dBA CNEL @ 100 Feet from Roadway Centerline	Distance from Roadway Centerline to: (Feet)			ADT	dBA CNEL @ 100 Feet from Roadway Centerline	Distance from Roadway Centerline to: (Feet)			
			60 CNEL Noise Contour	65 CNEL Noise Contour	70 CNEL Noise Contour			60 CNEL Noise Contour	65 CNEL Noise Contour	70 CNEL Noise Contour	
Carlsbad Boulevard											
Palomar Airport Rd. to Island Way	14,220	66.9	602	190	60	15,433	67.2	653	206	65	0.3
Island Way to Breakwater	18,134	68.0	768	243	77	19,347	68.3	819	259	82	0.3
Breakwater to Poinsettia	18,641	68.1	789	250	79	19,854	68.4	840	266	84	0.3
Poinsettia to Avenida Encinas	18,853	68.2	988	252	80	26,888	69.7	1138	360	114	1.5
Avenida Encinas to La Costa	24,061	69.2	1019	322	102	30,883	70.3	1307	413	131	1.1
La Costa to Leucadia	15,900	67.7	673	213	67	17,416	68.1	738	233	74	0.4
South of Leucadia	16,000	67.7	678	214	68	16,910	68.0	716	226	72	0.3
Avenida Encinas											
Cannon Road to Palomar Airport Road	7,667	61.4	161	51	16	7,667	61.4	161	51	16	0

Table 5.5-7 continued

Roadway Segment[2]	Existing ADT	Existing dBA CNEL @ 100 Feet from Roadway Centerline	Existing Distance from Roadway Centerline to: (Feet) 60 CNEL Noise Contour	Existing 65 CNEL Noise Contour	Existing 70 CNEL Noise Contour	Existing Plus Project ADT	Existing Plus Project dBA CNEL @ 100 Feet from Roadway Centerline	Existing Plus Project Distance from Roadway Centerline to: (Feet) 60 CNEL Noise Contour	Existing Plus Project 65 CNEL Noise Contour	Existing Plus Project 70 CNEL Noise Contour	Difference in dBA @ 100 Feet from Roadway
South of Palomar Airport Road	14,220	64.1	299	95	30	14,372	64.1	303	96	30	0
North of Poinsettia	4,748	56.3	49	15	5	4,900	56.5	50	16	5	0.2
South of Poinsettia	14,354	62.6	215	68	22	14,506	62.6	218	69	22	0
East of Ponto	3,777	57.0	57	18	6	4,080	57.6	61	19	6	0.6
College Blvd./ Aviara Pkwy.											
North of Palomar Airport Rd.	12,287	66.0	46.3	146	46	12,742	66.2	481	152	48	0.2
Palomar Airport Rd. to Poinsettia	10,524	64.1	300	95	30	11,737	64.6	335	106	33	0.5
Poinsettia to Batiquitos	15,557	64.4	327	104	33	15,709	64.4	330	104	33	0
Paseo del Norte											
North of Palomar Airport Rd.	10,558	61.2	159	50	16	10,710	61.3	161	51	16	0.1
Palomar Airport Rd. to Camino de Las Ondas	10,558	62.8	222	70	22	11,164	63.0	235	74	23	0.2

Table 5.5-7 continued

Roadway Segment[2]	Existing ADT	Existing dBA CNEL @ 100 Feet from Roadway Centerline	Existing Distance from Roadway Centerline to: (Feet) 60 CNEL Noise Contour	Existing 65 CNEL Noise Contour	Existing 70 CNEL Noise Contour	Existing Plus Project ADT	Existing Plus Project dBA CNEL @ 100 Feet from Roadway Centerline	Existing Plus Project Distance from Roadway Centerline to: (Feet) 60 CNEL Noise Contour	Existing Plus Project 65 CNEL Noise Contour	Existing Plus Project 70 CNEL Noise Contour	Difference in dBA @ 100 Feet from Roadway
Camino de Las Ondas to Poinsettia Lane	10,558	62.8	222	70	22	11,164	63.0	235	74	23	0.2
Palomar Airport Road											
Carlsbad Blvd. to Avenida Encinas	12,203	63.0	226	72	23	12,506	63.1	232	73	23	0.1
Ave Encinas to Paseo del Norte	48,294	68.8	898	284	90	48,597	68.8	902	285	90	0
Paseo del Norte to Armada Dr.	52,208	71.5	1715	542	171	52,511	71.5	1726	546	173	0
Armada Dr. to Hidden Valley Rd.	46,998	73.2	2519	796	252	47,604	73.2	2548	806	255	0
Hidden Valley Rd. to College Blvd.	46,052	73.1	2467	780	247	46,658	73.1	2501	791	250	0
College Blvd. to Camino Vida Roble	37,013	72.1	1982	627	198	38,377	72.3	2057	650	206	0.2
Camino Vida Roble to El Camino Real	32,878	71.6	1763	557	176	34,091	71.8	1825	577	182	0.2

Table 5.5-7 continued

Roadway Segment[2]	Existing					Existing Plus Project					Difference in dBA @ 100 Feet from Roadway
	ADT	dBA CNEL @ 100 Feet from Roadway Centerline	Distance from Roadway Centerline to: (Feet)			ADT	dBA CNEL @ 100 Feet from Roadway Centerline	Distance from Roadway Centerline to: (Feet)			
			60 CNEL Noise Contour	65 CNEL Noise Contour	70 CNEL Noise Contour			60 CNEL Noise Contour	65 CNEL Noise Contour	70 CNEL Noise Contour	
El Camino Real to El Fuerte	50,438	73.5	2705	855	270	51,196	73.5	2743	867	274	0
El Fuerte to Melrose	53,603	73.7	2872	908	287	54,361	73.8	2912	921	291	0.1
El Camino Real											
North of Palomar Airport Rd.	33,148	67.0	615	195	62	33,300	67.1	618	196	62	0.1
Palomar Airport Rd. to Camino Vida Roble	32,148	66.9	597	189	60	32,451	67.0	603	191	60	0.1
Camino Vida Roble to Cassia	30,825	66.7	573	181	57	31,128	66.8	578	183	58	0.1
Cassia to La Costa	46,017	73.1	2467	780	247	46,320	73.1	2484	786	248	0
La Costa to Leucadia	35,932	72.0	1924	608	192	36,084	72.0	1933	611	193	0
Poinsettia Lane											
Carlsbad Blvd. to Avenida Encinas	9,092	60.8	136	43	14	15,914	63.2	239	75	24	2.4
Avenida Encinas to I-5	17,800	63.6	267	84	27	24,622	65.0	370	117	37	1.4

Table 5.5-7 continued

Existing						Existing Plus Project					Difference in dBA @ 100 Feet from Roadway
Roadway Segment[2]	ADT	dBA CNEL @ 100 Feet from Roadway Centerline	Distance from Roadway Centerline to: (Feet)			ADT	dBA CNEL @ 100 Feet from Roadway Centerline	Distance from Roadway Centerline to: (Feet)			
			60 CNEL Noise Contour	65 CNEL Noise Contour	70 CNEL Noise Contour			60 CNEL Noise Contour	65 CNEL Noise Contour	70 CNEL Noise Contour	
I-5 to Paseo del Norte	20,762	64.3	312	99	31	23,036	64.7	346	109	35	0.4
Paseo del Norte to Batiquitos	29,467	65.7	442	140	44	31,135	65.9	467	148	47	0.2
Batiquitos to Aviara	22,702	67.4	647	205	65	24,066	67.6	687	217	69	0.2
La Costa Avenue											
Carlsbad to Vulcan	11,200	61.8	168	53	17	16,203	63.4	243	77	24	1.6
Vulcan to I-5	14,981	63.1	225	71	22	19,984	64.3	300	95	30	1.2
I-5 to Piraeus	33,921	66.4	509	161	51	35,134	66.6	527	167	53	0.2
Piraeus to El Camino Real	33,330	71.3	1619	512	162	34,391	71.5	1672	529	167	0.2
East of El Camino Real	10,015	63.9	286	90	29	10,318	64.0	294	98	29	0.1

ADT = average daily trips; dBA = A-weighted decibels; CNEL = community noise equivalent level

Notes:

1. Traffic data was based upon ADT counts per the Traffic Impact Analysis provided by RBF Consulting, October 2006.
2. Based on the City of Carlsbad *Noise Guidelines Manual,* the following vehicle mix was utilized:

Non Truck Route: 97.89 % Automobiles, 1.83% Medium Trucks, 0.28% Heavy Trucks; and

Designated Truck Route: 95.24 % Automobiles, 3.52% Medium Trucks, 0.83% Heavy Trucks.

Only Carlsbad Boulevard and Palomar Airport Road were modeled as *Designated Truck Routes*. All other roadways were modeled as *Non Truck Routes*.

Table 5.5-8
Year 2010 Noise Levels[1]

Year 2010						Year 2010 Plus Project					Difference in dBA @ 100 Feet from Roadway
Roadway Segment[2]	ADT	dBA CNEL @ 100 Feet from Roadway Centerline	Distance from Roadway Centerline to: (Feet)			ADT	dBA CNEL @ 100 Feet from Roadway Centerline	Distance from Roadway Centerline to: (Feet)			
			60 CNEL Noise Contour	65 CNEL Noise Contour	70 CNEL Noise Contour			60 CNEL Noise contour	65 CNEL Noise Contour	70 CNEL Noise Contour	
Carlsbad Boulevard											
Palomar Airport Rd. to Island Way	20,600	68.5	873	276	87	21,813	68.7	924	292	92	0.2
Island Way to Breakwater	20,600	68.6	871	276	87	21,813	68.3	923	929	92	-0.3
Breakwater to Poinsettia	21,100	68.7	894	283	89	22,313	68.9	944	299	94	0.2
Poinsettia to Avenida Encinas	20,700	68.6	875	277	88	28,735	70.0	1217	385	122	1.4
Avenida Encinas to La Costa	27,500	69.8	1165	368	116	34,322	70.8	1453	459	145	1.0
La Costa to Leucadia	25,500	69.8	1079	341	108	27,016	70.0	1143	361	114	0.2
South of Lecuadia	22,800	69.3	966	305	97	23,710	69.5	1005	318	100	0.2
Avenida Encinas											
Cannon Road to Palomar Airport Road	15,200	64.4	320	101	32	15,200	64.4	320	101	32	0

Table 5.5-8 continued

Roadway Segment[2]	Year 2010 ADT	Year 2010 dBA CNEL @ 100 Feet from Roadway Centerline	Year 2010 Distance from Roadway Centerline to: (Feet) 60 CNEL Noise Contour	65 CNEL Noise Contour	70 CNEL Noise Contour	Year 2010 Plus Project ADT	Year 2010 Plus Project dBA CNEL @ 100 Feet from Roadway Centerline	Year 2010 Plus Project Distance from Roadway Centerline to: (Feet) 60 CNEL Noise contour	65 CNEL Noise Contour	70 CNEL Noise Contour	Difference in dBA @ 100 Feet from Roadway
South of Palomar Airport Road	12,200	63.4	257	81	26	12,352	63.5	260	82	26	0.1
North of Poinsettia	9,200	59.2	95	30	9	9,352	59.3	96	30	10	0.1
South of Poinsettia	16,300	63.1	244	77	24	16,452	63.2	247	78	25	0.1
East of Ponto	6,100	59.0	91	29	9	6,403	59.3	96	30	10	0.3
College Blvd. / Aviara Pkwy.											
North of Palomar Airport Rd.	28,000	69.6	1056	334	106	28,455	69.6	1073	339	107	0.0
Palomar Airport Rd. to Poinsettia	12,700	64.9	363	115	36	13,913	65.3	397	126	40	0.4
Poinsettia to Batiquitos	19,100	65.3	402	127	40	19,252	65.3	405	128	40	0
Paseo del Norte											
North of Palomar Airport Rd.	20,100	64.0	301	95	30	20,252	64.1	303	96	30	0.1
Palomar Airport Rd. to Camino de Las Ondas	20,600	65.7	433	137	43	21,206	65.8	446	141	45	0.1

Table 5.5-8 continued

Roadway Segment[2]	Year 2010 ADT	Year 2010 dBA CNEL @ 100 Feet from Roadway Centerline	Year 2010 Distance from Roadway Centerline to: (Feet) 60 CNEL Noise Contour	65 CNEL Noise Contour	70 CNEL Noise Contour	Year 2010 Plus Project ADT	Year 2010 Plus Project dBA CNEL @ 100 Feet from Roadway Centerline	Year 2010 Plus Project Distance from Roadway Centerline to: (Feet) 60 CNEL Noise contour	65 CNEL Noise Contour	70 CNEL Noise Contour	Difference in dBA @ 100 Feet from Roadway
Camino de Las Ondas to Poinsettia Lane	20,600	65.7	433	137	43	21,206	65.8	446	141	45	0.1
Palomar Airport Road											
Carlsbad Blvd. to Avenida Encinas	16,000	64.2	297	94	30	16,303	64.2	303	96	30	0
Ave Encinas to Paseo del Norte	44,500	68.4	826	261	83	44,803	68.4	832	263	83	0
Paseo del Norte to Armada Dr.	62,200	72.3	2042	646	204	62,503	72.3	2052	649	205	0
Armada Dr. to Hidden Valley Rd.	61,300	74.3	3282	1038	328	61,906	74.4	3320	1050	332	0.1
Hidden Valley Rd. to College Blvd.	57,000	74.0	3056	966	306	57,606	74.0	3084	975	308	0
College Blvd. to Camino Vida Roble	41,900	72.7	2245	710	224	43,264	72.8	2318	733	232	0.1
Camino Vida Roble to El Camino Real	39,500	72.4	2114	669	211	40,713	72.5	2184	690	218	0.1

Table 5.5-8 continued

Roadway Segment[2]	Year 2010 ADT	Year 2010 dBA CNEL @ 100 Feet from Roadway Centerline	Year 2010 Distance from Roadway Centerline to: (Feet) 60 CNEL Noise Contour	65 CNEL Noise Contour	70 CNEL Noise Contour	Year 2010 Plus Project ADT	Year 2010 Plus Project dBA CNEL @ 100 Feet from Roadway Centerline	Year 2010 Plus Project Distance from Roadway Centerline to: (Feet) 60 CNEL Noise contour	65 CNEL Noise Contour	70 CNEL Noise Contour	Difference in dBA @ 100 Feet from Roadway
El Camino Real to El Fuerte	67,100	74.7	3599	1138	360	67,858	74.8	3632	1149	363	0.1
El Fuerte to Melrose	61,800	74.4	3312	1047	331	62,558	74.4	3351	1060	335	0
El Camino Real											
North of Palomar Airport Rd.	47,300	68.6	879	278	88	47,452	68.6	881	279	88	0
Palomar Airport Rd. to Camino Vida Roble	41,300	68.0	768	243	77	41,603	68.7	773	244	77	0.7
Camino Vida Roble to Cassia	48,200	68.7	896	283	90	48,503	68.7	902	284	90	0
Cassia to La Costa	59,700	74.2	3200	1012	320	60,003	74.2	3215	1017	321	0
La Costa to Leucadia	50,100	73.4	2686	849	269	50,252	73.5	2693	851	269	0.1
Poinsettia Lane											
Carlsbad Blvd. to Avenida Encinas	10,500	61.4	157	50	16	17,322	63.6	260	82	26	2.2
Avenida Encinas to I-5	24,800	65.0	372	118	37	31,622	66.1	474	150	47	1.1

Table 5.5-8 continued

Roadway Segment[2]	Year 2010 ADT	Year 2010 dBA CNEL @ 100 Feet from Roadway Centerline	Year 2010 Distance from Roadway Centerline to: (Feet) 60 CNEL Noise Contour	65 CNEL Noise Contour	70 CNEL Noise Contour	Year 2010 Plus Project ADT	Year 2010 Plus Project dBA CNEL @ 100 Feet from Roadway Centerline	Year 2010 Plus Project Distance from Roadway Centerline to: (Feet) 60 CNEL Noise contour	65 CNEL Noise Contour	70 CNEL Noise Contour	Difference in dBA @ 100 Feet from Roadway
I-5 to Paseo del Norte	30,600	66.0	459	145	46	32,874	66.3	493	156	49	0.3
Paseo del Norte to Batiquitos	28,700	65.6	431	136	43	30,368	65.8	455	144	46	0.2
Batiquitos to Aviara	22,900	67.4	653	207	65	24,264	67.6	692	219	69	0.2
La Costa Avenue											
Carlsbad to Vulcan	15,600	63.2	234	74	23	20,603	64.4	309	98	31	1.2
Vulcan to I-5	17,400	63.7	261	83	26	22,403	64.8	336	106	34	1.1
I-5 to Piraeus	22,500	64.6	338	107	34	23,713	64.8	355	122	36	0.2
Piraeus to El Camino Real	31,400	71.1	1528	483	153	32,461	71.2	1578	499	158	0.1
East of El Camino Real	19,300	66.7	551	174	55	19,603	66.8	560	177	56	0.1

ADT = average daily trips; dBA = A-weighted decibels; CNEL = community noise equivalent level

Notes:

1. Traffic data was based upon ADT counts per the Traffic Impact Analysis provided by RBF Consulting, October 2006.
2. Based on the City of Carlsbad *Noise Guidelines Manual,* the following vehicle mix was utilized:

Non Truck Route: 97.89 % Automobiles, 1.83% Medium Trucks, 0.28% Heavy Trucks; and

Designated Truck Route: 95.24 % Automobiles, 3.52% Medium Trucks, 0.83% Heavy Trucks.

Only Carlsbad Boulevard and Palomar Airport Road were modeled as *Designated Truck Routes*. All other roadways were modeled as *Non Truck Routes*.

Table 5.5-9
Year 2030 Noise Levels[1]

Year 2030						Year 2030 Plus Project					Difference in dBA @ 100 Feet from Roadway[3]
Roadway Segment[2]	ADT	dBA CNEL @ 100 Feet from Roadway Centerline	Distance from Roadway Centerline to: (Feet)			ADT	dBA CNEL @ 100 Feet from Roadway Centerline	Distance from Roadway Centerline to: (Feet)			
			60 CNEL Noise Contour	65 CNEL Noise Contour	70 CNEL Noise Contour			60 CNEL Noise Contour	65 CNEL Noise Contour	70 CNEL Noise Contour	
Carlsbad Boulevard											
Palomar Airport Rd. to Island Way	23,387	69.0	990	313	99	24,600	69.2	1042	329	104	0.2
Island Way to Breakwater	23,387	69.1	989	313	99	24,600	69.3	1040	329	104	0.2
Breakwater to Poinsettia	23,387	69.1	989	313	99	24,600	69.3	1040	329	104	0.2
Poinsettia to Avenida Encinas	14,065	66.9	596	188	60	22,100	68.9	936	296	94	2.0
Avenida Encinas to La Costa	26,078	69.6	1104	349	110	32,900	70.6	1394	441	139	1.0
La Costa to Leucadia	31,384	70.7	1327	420	133	32,900	70.9	1393	441	139	0.2
South of Leucadia	31,990	70.8	1355	429	136	32,900	70.9	1393	441	139	0.1
Avenida Encinas											
Cannon Road to Palomar Airport Road	9,900	62.5	208	66	21	9,900	62.5	208	66	21	0.0

Table 5.5-9 continued

Year 2030						Year 2030 Plus Project					Difference in dBA @ 100 Feet from Roadway[3]
Roadway Segment[2]	ADT	dBA CNEL @ 100 Feet from Roadway Centerline	Distance from Roadway Centerline to: (Feet)			ADT	dBA CNEL @ 100 Feet from Roadway Centerline	Distance from Roadway Centerline to: (Feet)			
			60 CNEL Noise Contour	65 CNEL Noise Contour	70 CNEL Noise Contour			60 CNEL Noise Contour	65 CNEL Noise Contour	70 CNEL Noise Contour	
South of Palomar Airport Road	10,048	62.6	211	67	21	10,200	62.7	215	68	21	0.1
North of Poinsettia	10,048	59.6	103	33	10	10,200	59.6	105	33	10	0
South of Poinsettia	15,748	63.0	236	75	24	15,900	63.0	238	75	24	0
East of Ponto	15,597	63.1	234	74	23	15,900	63.2	239	75	24	0.1
College Blvd./ Aviara Pkwy.											
North of Palomar Airport Rd.	27,045	69.4	1018	322	102	27,500	69.5	1037	328	104	0.1
Palomar Airport Rd. to Poinsettia	9,387	63.6	268	85	27	10,600	64.1	303	96	30	0.5
Poinsettia to Batiquitos	19,848	65.4	417	132	42	20,000	65.5	421	133	42	0.1
Paseo del Norte											
North of Palomar Airport Rd.	23,648	64.7	355	112	36	23,800	64.8	357	113	36	0.1
Palomar Airport Rd. to Camino de Las Ondas	17,994	65.1	378	120	38	18,600	65.3	392	124	39	0.2

Table 5.5-9 continued

Roadway Segment[2]	Year 2030 ADT	Year 2030 dBA CNEL @ 100 Feet from Roadway Centerline	Year 2030 Distance from Roadway Centerline to: (Feet) 60 CNEL Noise Contour	65 CNEL Noise Contour	70 CNEL Noise Contour	Year 2030 Plus Project ADT	Year 2030 Plus Project dBA CNEL @ 100 Feet from Roadway Centerline	Year 2030 Plus Project Distance from Roadway Centerline to: (Feet) 60 CNEL Noise Contour	65 CNEL Noise Contour	70 CNEL Noise Contour	Difference in dBA @ 100 Feet from Roadway[3]
Camino de Las Ondas to Poinsettia Lane	17,994	65.1	378	83	38	18,600	65.3	392	124	39	0.2
Palomar Airport Road											
Carlsbad Blvd. to Avenida Encinas	14,197	63.6	264	83	26	14,500	63.7	269	85	27	0.1
Ave Encinas to Paseo del Norte	72,197	70.5	1340	424	134	72,500	70.5	1346	426	135	0
Paseo del Norte to Armada Dr.	67,197	72.6	2209	698	221	67,500	72.6	2219	702	222	0
Armada Dr. to Hidden Valley Rd.	64,794	74.6	3469	1097	347	65,400	74.6	3501	1107	350	0
Hidden Valley Rd. to College Blvd.	61,094	74.3	3275	1036	327	61,700	74.3	3505	1045	330	0
College Blvd. to Camino Vida Roble	39,236	72.4	2100	664	210	40,600	72.5	2173	687	217	0.1
Camino Vida Roble to El Camino Real	39,387	72.4	2109	667	211	40,600	72.5	2173	687	217	0.1

Table 5.5-9 continued

Year 2030						Year 2030 Plus Project					
Roadway Segment[2]	ADT	dBA CNEL @ 100 Feet from Roadway Centerline	Distance from Roadway Centerline to: (Feet)			ADT	dBA CNEL @ 100 Feet from Roadway Centerline	Distance from Roadway Centerline to: (Feet)			Difference in dBA @ 100 Feet from Roadway[3]
			60 CNEL Noise Contour	65 CNEL Noise Contour	70 CNEL Noise Contour			60 CNEL Noise Contour	65 CNEL Noise Contour	70 CNEL Noise Contour	
El Camino Real to El Fuerte	72,342	75.0	3874	1225	387	73,100	75.1	3919	1239	392	0.1
El Fuerte to Melrose	72,342	75.0	3874	1225	387	73,100	75.1	3919	1239	392	0.1
El Camino Real											
North of Palomar Airport Rd.	49,648	68.8	923	292	92	49,800	68.8	925	293	92	0
Palomar Airport Rd. to Camino Vida Roble	52,997	69.1	984	311	98	53,300	69.1	989	313	99	0
Camino Vida Roble to Cassia	49,797	68.8	925	293	92	50,100	68.8	931	295	93	0
Cassia to La Costa	61,597	74.3	3297	1043	330	61,900	74.4	3312	1047	331	0.1
La Costa to Leucadia	46,948	73.2	2513	795	251	47,100	73.2	2524	798	252	0
Poinsettia Lane											
Carlsbad to Avenida Encinas	6,278	59.2	94	30	9	13,100	62.4	196	62	20	**3.2**
Avenida Encinas to I-5	6,278	59.1	94	30	9	13,100	62.3	197	62	20	**3.2**

Table 5.5-9 continued

Roadway Segment[2]	Year 2030 ADT	Year 2030 dBA CNEL @ 100 Feet from Roadway Centerline	Year 2030 Distance from Roadway Centerline to: (Feet) 60 CNEL Noise Contour	65 CNEL Noise Contour	70 CNEL Noise Contour	Year 2030 Plus Project ADT	Year 2030 Plus Project dBA CNEL @ 100 Feet from Roadway Centerline	Year 2030 Plus Project Distance from Roadway Centerline to: (Feet) 60 CNEL Noise Contour	65 CNEL Noise Contour	70 CNEL Noise Contour	Difference in dBA @ 100 Feet from Roadway[3]
I-5 to Paseo del Norte	33,826	66.4	508	161	51	36,100	66.7	542	171	54	0.3
Paseo del Norte to Batiquitos	34,432	66.4	517	163	52	36,100	66.6	541	171	54	0.2
Batiquitos to Aviara	16,936	66.1	483	153	48	18,300	66.4	523	165	52	0.3
La Costa Avenue											
Carlsbad to Vulcan	13,297	62.5	199	63	20	18,300	63.9	275	87	27	1.4
Vulcan to I-5	16,097	63.4	241	76	24	21,100	64.5	317	100	32	1.1
I-5 to Piraeus	39,187	67.0	589	186	59	40,400	67.2	606	192	61	0.2
Piraeus to El Camino Real	39,339	72.1	1911	604	191	40,400	72.0	1964	621	196	0.1
East of El Camino Real	20,497	67.0	585	185	58	20,800	67.1	594	188	59	0.1

ADT = average daily trips; dBA = A-weighted decibels; CNEL = community noise equivalent level

Notes:

1. Traffic data was based upon ADT counts per the Traffic Impact Analysis provided by RBF Consulting, October 2006.
2. Based on the City of Carlsbad *Noise Guidelines Manual*, the following vehicle mix was utilized:
   Non Truck Route: 97.89 % Automobiles, 1.83% Medium Trucks, 0.28% Heavy Trucks; and
   Designated Truck Route: 95.24 % Automobiles, 3.52% Medium Trucks, 0.83% Heavy Trucks.
   Only Carlsbad Boulevard and Palomar Airport Road were modeled as *Designated Truck Routes*. All other roadways were modeled as *Non Truck Routes*.
3. Increases highlighted in **BOLD** would result in a significant impact.

Table 5.5-10
Railroad Noise Levels

Trains Per day	dBA CNEL @ 100 feet from the Railroad Centerline Without Shielding
20	60

Source: Modeling based on HMMH Inc, Federal Railroad Administration Rail High Speed Rail Initial Noise Evaluation, *HSRNOISE, 1998.*

Table 5.5-11
Proposed Land Uses

Plan Area	Land Use
A	Hotel Restaurant Conference Facility
B	Specialty Retail
C	Hotel Units
D	Apartments Live/work Units
E	Resort Hotel & Banquet Facilities
F	Townhomes (Condos) Specialty Retail Restaurant/Retails
G	Passive Park
H	Hotel Specialty Retail Restaurant
I	Specialty Retail

Source: RBF Consulting, *Traffic Impact Analysis*, October 2006.

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Figure 5.5-1
Levels of Environmental Noise

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Figure 5.5-2
Noise Measurement Locations

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